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ABSTRACT

Massive cultural interventions that have occurred in the last 20 years have produced global intelligences whose characteristics transcend the cultural context. Global intelligences are communalities of competencies shared extensively among all world societies. This document presents a preliminary report on a study of global intelligences. Three general intelligences appear to occur on a global basis: (1) common language, in the form of a world English; (2) integrative intelligences, in which various cognitive and emotive competencies reunite in the educational process; and (3) newly rediscovered mythic intelligences, which may enable people to develop relationships among all living creatures, non-living things, and the planet itself. The massive efforts being made on a global scale to develop human intelligences in new and rediscoverd forms cannot be ignored. (SG)

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CONTRIBUTION OF EDUCATION TO CULTURAL DEVELOPMENT

"Effects of Cultural Interventions on Educational Competencies: Intelligences Re-discovered"

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SUMMARY

The theme of this Conference is "The Contribution of Education to Cultural Development". This paper argues that in addressing the theme, we should make no separation between education and culture, both are intrinsically related in an active process of activity of thought and receptiveness to beauty and humane feeling. Both education and cultural development are aimed at the creation of human intelligences - the array of interrelated competencies used by individuals as appropriate to task, time and cultural context.

Most intelligences are culture-specific but interventions among cultures can result in the emergence of "global intelligences" where there are communalities of competencies shared extensively among all world societies. Further, there is generally common agreement on how these global intelligences can be brought about in education programs. Over the past twenty years there have been massive cultural interventions occurring throughout the world. These have produced global intelligences with characteristics which transcend the cultural context. In many cases the global intelligences represent culture-specific competencies which are now recognized as commonalities on a global scale.

The paper gives a preliminary report on a study of global intelligences. Three general intelligences are identified as occurring on a global basis. Common Language with the rapid emergence of World English; Integrative Intelligences where various cognitive and emotive competencies are being re-united in the education process; Mythic Intelligences which are now being re-discovered to enable persons to go beyond data at hand to develop relationships among all living creatures on the planet, with non-living things and even the planet itself.

BACKGROUND TO THE STUDY

The broad study of global intelligences grows directly from a review, "From International Aid to International Cooperation" which appeared in 1979 in the International Review of Education (1). The Jubilee Number in which the review was published took up a retrospective analysis and evaluation of twenty-five years of education development throughout the world. Although much had been achieved during the quarter century, the gains were overshadowed by what had to be done. And it was clear that more of the same was not what was needed. Massive changes were required not only in the amount of learning which was being brought about but also in our thinking about human competencies. The report of the International Commission on the Development of Education ("Learning To Be", 1972) had given the same message and the same urgency for "new approaches"(2). Given the shift and broil of time since the reviews were published, a broad study that might identify and characterize human global intelligences seemed warranted.

The objective of the study is to identify and characterize global intelligences. These are not something that just happen but are being brought about in a wide variety of education programs. By looking carefully at those programs, it should be possible to discern what intelligences are currently being brought about. Comparing what is said about programs should give some indication of similarities extant in the world. Comparing what was described as

intelligences twenty years ago with current descriptions, should give some indication of how far we may have moved since the reviews took place. We also may manage to make clearer what we should be talking about when we use such terms as "education", "intelligences", "culture" and "interventions".

CULTURE AND EDUCATION

The problem with the words education and culture is not that they have no meaning but that they have too many meanings. Education is commonly used to describe those ways by which a society brings about appropriate learning in its members. Formal education is considered to be the principal instrument by which this is done. Acculturation of the individual is thought to be an inherent part of the process and a crucial objective but "culture" per se is not seen as the principal responsibilty of education. We have all such extensive experience with education and culture that the meanings assigned to the words are regarded as self evident. " I know, as long as you don't ask me" according to St. Augustine and for most of us the two words have clear and separate meanings well understood anywhere in the world.

Any attempt to define culture soon shows the perils of the assumption. The United Nations Conference on the Development of Culture produced a volume of definitions(3) encompassing , not surprisingly, as many definitions as were applicable to those member states attending the conference. And similarly with the word education. As societies now move to implement the World Declaration on Education for All(4)the diversity of meanings bedevils action plans,particularly when assigning scarce financial resources. For the majority of persons whose primary objective is survival on a day by day basis, agreement on the meanings of the words may seem highly irrelevant. But when the diversity threatens action plans for survival of individuals, societies and even the planet itself,some common agreement is required.

Both education and culture refer to an active process which gives identity past,present and future to an individual and a society. The process begins when we take our first breath (some argue even earlier) and ends when we exhale our last. Schools, universities and cultural institutions are important facilitators of the process but no one can give identity to any individual any more than one can eat breakfast for someone else. A. N. Whitehead began his famous essay on the Aims of Education(5)by uniting into one process both culture and education "Culture is activity of thought,and receptiveness to beauty and humane feeling."And in that process "One must not divide the seamless coat of learning." For purposes of discussion, the words education and culture may be regarded as somewhat separate human activities, but it is crucial to remember that the meanings are intrinsically united in process.The human organism brooks no discontinuities.

In the active process of achieving identity,persons learn from each other and aid (sometimes hinder) each other in their learning. It is in this communality of learning that a "culture" is created and the individual gains a cultural identity. It is the sharing of cultural identities that defines a society and often a nation state. It is why education is essentially culture specific. And why education is of such crucial importance in cultural development.

Often the process requires centuries and must be worked at if the cultural identities are to be maintained, enhanced and continued. Frequently the process of maintenance can cause conflict and social disruption both within communities and among societies.The most common source of conflict is a perceived, or actual, intervention from another culture. Most societies respond by closing their contacts with the intervening societies and by intensifying acculturation activities in education .When interventions are all pervasive, the uniqueness of the culture may be significantly altered and may even be melded into the pervasive culture.

This phenomenon is particularly evident in the maintenance of cultural identies through language. My first language was Gaelic, learned at my Grandmother's knee not as Gaelic but as what one did in talking with your Grandmother and others in the community who were talking the same way. Gaelic was the carrier of culture from Scotland to Canada in the mid-nineteenth century and served to define an unique identity for the community. The language and the cultural identity flourished for two generations. With the appearance of English as pervasive in the economic, social and educational milieu, Gaelic disappeared within twenty years from the community, remembered only through museum archives. And with the disappearance, the community appeared to have lust its unique cultural identity.

The example is a familiar one. Few persons are consciously aware of the process by which we learn a language and our identity. We make a tacit acceptance of both the power and the weaknesses of language and culture. When interventions threaten, we often use formal education to buttress the cultural identity of the community. Individuality, however, has been built up by powerful informal and nonformal learning which has required change at every turn if the individual is to survive. The process is unforgiving on the fragility of language. The adaptations are crucial, however, to the long-term identity of individuals. The process, even though painful, provides for essential change in new contexts and for renewed vitality of the old culture. Thus, the Gaelic which had disappeared, is being re-discovered in a new generation in different communities. Even to the point where the Gaelic songwriter of a rock band , Run Rig, has been elected as Rector of the University of Edinburgh!

INTELLIGENCES

The outcomes of informal, non-formal and formal education are intelligences: competencies used by individuals as appropriate to task, time and cultural context. The plurality of the word intelligence indicates that human competencies are almost infinitely varied in their manifestations. There is not, and there never can be, a single, universally accepted list of intelligences. Agreement may come when the level of analysis is only in limited areas of neurophysiology or the predictability of I.Q. scores and an individual's success in graduating from a formal educational institution. Human intelligences go far beyond the limited, unitary lists used in intelligence testing and must encompass all those competencies which are needed for identity and survival.

Howard Gardiner examines the concept of a plurality of human intelligences in " Frames of Mind"(6) and gives extensive documentation of what the concept means in individual behaviour within cultural contexts. The documentation should put to rest those pernicious efforts to simplify human intelligences into some single cultural mode. The efforts to create a " culture-free" intelligence test seem now to have ended(7). And hopefully we may be spared from any more racist "comparisons" of human intelligences (8). The current extensive efforts to develop "artificial intelligence" are succeeding well in creating something artificial with little direct illumination on the complexities and powers of human intelligences. Even though computer technology is becoming increasingly useful in facilitating some human competencies, the technologies can never duplicate, let alone create, human intelligences(9).

The base for intelligences rests in physiological functioning and in the particular ways by which external and internal sensorial inputs are arranged and ordered into behaviour by the individual. From the very beginings of life, and from then on, such events as maternal child care, dietary patterns, availabilty of sensorial stimulation, child rearing practices and the total milieu will determine what intelligences will be released and the extent to which the intelligences will be developed, recognized and utilized. The education process specific to the

culture plays the major role in determining what intelligences will be developed, when, in what order and even how many.

There are immense individual differences in intelligences and,equally,in the characteristics and the utilization of intelligences among cultures. Competencies in language powers, for example, vary immensely among individuals within a culture and languages as cultural entities differ widely throughout the world. Human intelligences are primarily culture-specific. They encompass the full range of human activities both individually and shared within a group, community or society. The intelligences of the Inuit Peoples, for example, range from the complex systems of describing snow in a hostile environment through to the exquisite beauty of a soapstone carving releasing the spirit of all living beings in the culture.

Human intelligences may,however,transcend space,time and culture. In such occurrences, the intelligences become global in their characteristics. The competencies exhibited are not only appropriate within the culture but also in all other cultures of the world. The global human intelligences constitute a communality of competencies for addressing problems which are affecting all life on the planet. Their appearance comes from the urgencies of survival of the human species and the planet itself. The magnitude of their occurrence is the outcome of massive cultural interventions.

CULTURAL INTERVENTIONS

There are no societies extant to-day immune from these interventions. They can be subtle such as occur in mass communication or in economic exchange. Others may be direct and all pervasive such as occurred in the cultural imperialism of colonialism. Most interventions occur through deliberate choices of societies as in cultural exchanges, in technological transfers, in telecommunications and in education development assistance programs. All these cultural interventions can have massive effects not only on the intelligences which are being brought about but on the society itself.

Never in human history have there been so many reasonably educated people(10). Never have so many had a level of subsistence, precarious though it might be, to allow time and energies for systematic efforts in bringing about intelligences. The World Declaration on Education for All(11)calls for massive interventions by all societies in development of intelligences. Never in human history have so many people been able to travel, to communicate, to learn from each other and aid each other in their learning, to recognize the strengths and weaknesses of cultural interventions and to make commitments towards bringing about change peacefully within a global context.

Patterns of interventions have shifted dramatically in the past twenty years. In place of a North to South flow of cultural interventions, there has emerged not only a return flow but also a heightened South-South flow of interventions. The shifts in development assistance programs are instructive(12)

less emphasis on	more emphasis on
grants for study and training in the donor country	grants for study and training in the recipient or in "third" developing countries
supply of teachers	teacher training
supply of experts in administration and operation	supply of experts in methods of educational change, innovation and non-formal education ; use of institutions both in developed and developing countries for change
overall literacy campaigns	functional literacy activities
vocational training within formal systems	participation of employers
expansion of enrolment	reduction of dropout and repetition
manpower efficiency	unified economic and social criteria
cycles and pupil streams	adaptation to economic and social needs
general curriculum development	integrated general curriculum
aid to educational system as a whole	attention to areas of special need
support of foreign practices in national systems	critical evaluations of all practices
prevailing priorities in national education	selective assistance
"hard" loans for development	"soft" loans and credits
independence of educational aid	links with overall development
external planning of projects	country programming
aid agencies competition	informal and formal coordination
expertise from the North	expertise in countries and regions
use of individual experts	use from all sources
traditional media and methods	new media and methods
evaluation in money values	cost effectiveness studies
country data by each donor	exchange of country data and analyses

The shifts have changed even more dramatically with the World Declaration on Education for All. The interventions must be aimed now at more basic education which will develop intelligences on which other competencies can be built. Thus although primary education has expanded extensively from 133 million in 1960 to 483 million in 1985, there remains a substantial number of countries, mostly the poorest, where more than a third of school age are not enrolled in schools. Similarly, despite several successful mass campaigns, the number of adult illiterates is estimated at 860 million of whom the majority are women. The interventions must be increased on a global scale and the kinds of interventions must be changed. "Business as usual" is no longer appropriate. The intelligences which are to be brought about must make it possible for individuals, and societies, to survive and to develop in an increasingly interdependent world. The cultural interventions required to make this happen must directly reflect the cultural specificity of the intelligences but also their possibilities in a global context. All countries have now been charged with making commitments towards that objective. The task of the current study of global intelligences is to see what form those commitments are

The task of the current study of global intelligences is to see what form those commitments are taking in concrete education programs.

INTELLIGENCES RE-DISCOVERED

STUDY METHODOLOGY

Data are being collected on institutional education programs currently in place.The sample includes programs of multilateral organizations, regional groups, national systems and localized organizations. Eventually the sample will include all regions of the world. Although arbitrary, the study is be undertaken during the period September, 1991 to September,1994 to provide some constantcy in data collected and to give a general twenty-year perspective to the study. All data come directly from public reports on formal and non-formal education programs of the institutions. No attempt is being made to include the massive changes which the institutions are planning for their programs; the data reflect what is happening and the commitments in place at a specific moment of time and in the particular modes of describing programs.

A Logical Framework Approach (13) is being used to summarize available data. The approach allows programs to be compared on a common framework. Each institution in the sample is being asked to put the descriptions of their programs into a two-dimensional , four row by four column matrix. The preperation usually is completed within an hour although additional time may be required by the institution in gaining concurrence on the matrix description. When completed, the matrix describes a program in a concise, objective manner.The method enables a presentation of the why and the how of a program in a systematic, orderly fashion. The rows represent levels of objectives , including the means to achieve them, as a vertical logic. The elements of the horizontal logic in the columns are the program commitments-the specfic ways in which achievements of the various levels of objectives can be determined.In all collections to date, the exercise has been welcomed as a good way of getting common agreement within the institution and for making a rational presentation on activities.

The common framework allows institutions to compare their similarities and their differences primarily on the basis of the vertical and horizontal logic and particularly on common assumptions which are being made. Feedback to participants occurs during the preparation of the matrix and will take place over the life of the study. Essentially, the collection of data allows for extensive interpretations to occur on a global basis. The interpretations which thus arise can reveal not only what individual education programs might be about but also the global intelligences which may be extant.

At the macro level of data analysis, comparisons are being made of commonalities in the Logical Framework Approach (LFA) reports. Similarities and differences are being examined in terms of frequency for both vertical and horizontal logic. Preliminary analyses have been undertaken on the sample covered during the period August, 1991 to May, 1992 primarily to assess the efficacy of the LFA procedures in securing data suitable for macro analyses. Without question, the procedure constrains individual institutions in describing their programs. There is a major loss in portraying the fluidity of programs and the dynamics of movements towards broad, future objectives. The procedure, however, forces the institutions to describe what they are doing as possibilities within available time and resources. The constraints of the LFA also force a commonality of interpretation which can then be useful in comparing on a case-by- case basis and a global perspective.

PRELIMINARY OBSERVATIONS

To date sampling has occurred in North America, Western Europe, the South Pacific and South-East Asia. Programs have been sampled in multilateral organizations (eg. UNESCO and its specialized centres), regional institutions (eg. the specialized centres of the South East Asia Ministers of Education Organization; University of the South Pacific), State Ministries (eg.Thailand; Ontario) and local institutions (eg. universities in Canada, The Netherlands and New Zealand). A total of 22 LFA reports have been used in the preliminary analysis.

The study is only at the beginning,accordingly, in terms of a global perspective. The sampling and preliminary analysis have produced such strong commonalties, however, that some observations on global intelligences would seem warranted at this time .In setting out these observations it is critical to note that none of the intelligences are physically verifiable entities. They are only potentially useful instruments to think with in our attempts to understand what we are-or should be-doing in our global efforts of education.

COMMON LANGUAGE INTELLIGENCES

Although institutions were given the opportunity to report on their education programs in the language of their choice, without exception,all opted to complete the LFA matrix in what can be called World English. All recognized that the study was international and assumed that the principal mode of communication would be that now used worldwide in such fields as science and technology information transfer, air traffic control and general international communication and commerce(14).Even the public documents used to describe their programs had World English predominating over other official languages. The phenomenon is part of the larger context of World English emerging as a common language now estimated for at least one and a quarter billion persons throughout the planet. It is also clear that the number is increasing at an exponential rate. For example, the SEAMEO Regional Language Centre reports that their work has created a major multiplier effect whereby in twenty years there has been a growth of over one hundred and twenty million persons in the region who attained global competency in World English.

In the sample, World English appears not as a second or alternative language but an instrument to think with and to operate safely and confidently. World English appears to be not just a modus operandi for entering the thought and feeling of another culture but also for building specific intelligences. It is used extensively in the education programs as a primary instructional mode. In regional and multilateral training programs (such as the SEAMEO centres) it is the instrument used to overcome lack of common knowledge in the diverse first languages of participants.World English appears to be an instrument for simplification whereby competencies can be developed and then used as appropriate for task, time and culture contexts.

The preliminary analyses of the LFA reports indicate many common features of World English. There is a core vocabulary used to denote " operations"(make, have, etc.); " things" (general as in education or development;picturable as in library or engine) and " qualities" both general (healthy,dependent,etc.) and as opposites(complete, different). Remarkably this core vocabulary has a strong resemblance to C.K. Ogden's ingenious BASIC English (15) without the rigidity of his original invention. The reports also include general and technical terms denoting the ways by which learning can be brought about. The commonality of the language used indicates a simplification aimed directly at reducing the odds against successful communication. With World English as an instrument,all institutions in the sample appeared to feel comfortable that they were going to be successful in their communication with other institutions and in their own institutional interactions.

In the sample, there does not appear to be any serious impingements on national languages, primary languages of education or on specific cultures. If impingements are occurring, the data of this study are not going to illumine the problem. In fact, there are many instances in the sample where World English is being used to maintain fragile minority oral languages. In those cases, World English has become an instrument to record the oral traditional culture which when recognized becomes written and the first subject matter on the road to literacy(16). In the SEAMEO countries, there appears to be evidence that the emergence of World English may even be having a salutary effect on maintenance and enhancement of official languages. Much more analysis is needed on the sample and other contexts before the true effects of World English can be determined.

INTEGRATIVE INTELLIGENCES

In the study sample there is extensive commonality in the descriptions used to describe a process for developing integrated competencies. The objectives of education are to develop intelligences capable of problem solving. All the objectives reflect a shift from developing persons with highly specialized intelligences to the development of persons who will have intelligences suitable to address their own well-being in association with developing the well-being of others. "Learning to Be" appears to be shifting to "Learning to Care". For example, in place of developing specialized competencies for a few in mathematics and science, the objective is to create problem solving competencies for all participants in the program. Integrative intelligences, it appears, must bring back together many intelligences which should not have been separated in the first place. Thus the education programs now talk about "interdisciplinary" learning and ways by which arts, humanities,the social sciences ,the sciences and technology can be brought together to build intelligences appropriate for an improved "quality of life" for all.

Appropriateness of integrative intelligences appears to be determined by how effective and continuously a problem can be resolved. "Functional literacy" intelligences must not only be effective for the individual in an immediate work environment but also when the environment changes. Integrative intelligences are also appropriate when there is effective utilization of science and technology in addressing "world problems"such as in maintenance of the environment and in "sustainabilty" of the planet. Even though the descriptions of education programs appear somewhat faddish and in reality fragmentation of intelligences still exist, efforts and commitments are being made. And evaluation of appropriateness of intelligences is found in all education programs of the sample.

A good example of global integrative intelligences is found in community-based health care systems. Utilization of the intelligences is aimed directly at improving the quality of life for all membbers of the community. The intelligences are utilized by all members and are not just the purview of the health care specialist.The entire community have intelligences appropriate for the maintenance of a supply of clean water and for food security. Mothers have competencies for assessing growth of infants and for maintenance of the child's well-being. The integrative intelligences are found principally in the developing countries because it is there that problems have been most acute and where self-reliance was essential for survival. The sample shows that industrialized societies are now also recognizing the need for integrative intelligences.

Just as there is a change to integrative intelligences at the individual and community level, there appears to be a corresponding change in specialized institutions. For example, the specialized centres of the United Nations or SEAMEO now include many disciplines under one roof and their education programs are all aimed at the integration of competencies There is a

clear recognition that problem solving demands not only a crossing of boundaries but also the use of interrelated competencies shared by all participating in problem solving.

In the sample, it is universities that are having the greatest difficulties in shifting towards integrative intelligences. Because of departmental rigidities and the specialized nature of research interests, universities in the sample appear to be particularly convulsed by the change and by a growing lack of financial support from governments. All of the universities in the sample were now having to engage in cost-cutting ventures and in "improved management practices". They all appeared reluctant to accept an inevitability of the vertical and horizontal logic of the LFA. For all other institutions, integrative intelligences are now their modus operandi.

MYTHIC INTELLIGENCES

The emergence of integrative intelligences seems to be providing a base for the emergence and re-discovery of other intelligences. In the sample,there are strong indications of activities for creating what can be called " mythic intelligences". The programs appear to be aimed increasingly at creating competencies which can go beyond data at hand to project human thought, action,feelings and sensitivities both forward and backward in time. These mythic intelligences are considered to be of importance not only in creating other intelligences but also in the belief systems, history and aspirations of societies. Mythic intelligences are also being seen as crucial to the survival of the human species and even the planet itself.

Until it was revised recently, the Concise Oxford Dictionary defined "myth" merely as "purely fictitious narrative"- a story that isn't true. In the Western World, Northrop Frye (16) has been primarily responsible for restoring its proper, non-pejorative meaning as " an interconnected body of significant stories that a society needs to know" According to Frye, mythic intelligences are "what we live by" and what the Western World requires to re-discover urgently. It is the same non-pejorative sense and the same urgency that characterize mythic intelligences in the sample.

The non-Western institutions are developing mythic intelligences as an intrinsic objective of their education programs simply because the intelligences are " what are necessary". All sample institutions appear now to regard mythic intelligences as doing something even more specific. The intelligences make possible the creative forces in research and are important determinants in the applications of science and technology. Several institutions in the sample hold that science itself is a form of mythic intelligences that must be understood more clearly. In the development of such scientific intelligences, human imagination must play a crucial role. The illustration is made of how senior physicists often talk of the affinity of one molecule to another. Even the universe itself is often spoken of as primarily an imaginative idea.The mythic intelligences in science arise again from " the interconnected stories"that our global society needs to know.

Many forms of mythic intelligences are being re-discovered according to the sample programs.Holistic medicine frequently depends on utilization of mythic intelligences and particularly on the relationships among persons and their environment.Mythic intelligences play a crucial role in defining and maintaining identitity of the individual and society and are thus critical in the maintenance of appropriate mental health. By re-discovery of mythic intelligences, many institutions in the sample feel that the injustices against women can be remedied. It is their view that mythic intelligences are found most commonly in women and it is now critical that those intelligences be appropriately acknowledged.

It may be no accident, accordingly, that so much emphasis is placed in the sample on the mythic intelligences of the "earth goddess".When James Lovelock first advanced the mythic

intelligences of Gaia(17)he was met with general skepticism particularly in the ways of seeing the planet as a total living organism. Now the mythic intelligences are not regarded as that far-fetched.There are indeed instrinsic relationships between living and non-living entities. There are direct connections between all living beings on the planet and relationships with all parts of the universe itself.Much of the formative planning and commitment coming into place from the United Nations Conference on the Environment and Development(18) is a direct outgrowth of the emergence of mythic intelligences.

It is much too early in the study to suggest a globality for mythic intelligences. Or for that matter, any other global intelligences.The reports of education programs remain as just reports and not concrete, operational intelligences. All that can be guaranteed about human intelligences is that they cannot be guaranteed and especially on a global basis. However, even with the modest analysis to date one cannot ignore the massive efforts and commitments being made on a global scale to develop human intelligences in new and re-discovered forms.

NOTES

1. MacKinnon, Archie R., "From International Aid to International Cooperation: Some Thoughts in Retrospect". International Review of Education XXV, Hamburg: UNESCO Institute of Education, 1979, pp.106-121.

2. UNESCO International Commission on Development of Education (E. Faure, Chairman) "Learning to Be", Paris, 1972.

3. A critical review of definitions is given in "The Character of Culture" by D. Paul Schafer, in: A World Culture Project, Markham, Ontario, Canada, L3P 3A1, 1991.

4. The World Conference on Education for All was held at Jomtien, Thailand in March, 1990. The conference reaffirmed international commitments to Universal Primary Education and recommended specific new approaches which would be required in education for all.

5. Whitehead, A.N., "The Aims of Education". London: Williams and Northgate, Seventh Impression, 1951.

6. Gardiner, Howard, "Frames of Mind". New York: Basic Books, 1983.

7. The subject of intelligence and intelligence testing has been for almost a century the predominant interest of psychology. There is a vast literature on the subject and much controversy surrounding the concept of I.Q. and the misuse of testing.There is general agreement now that intelligence is a social concept and efforts to develop a "culture-free" intelligence have largely ceased. See Ornstein, R. and Ehrlich, P. "New World-New Mind:Moving Toward Conscious Evolution". New York: Doubleday, 1989.

8. The controversies on intelligence testing peaked when large statistical studies were used to compare racial groupings. The studies masked the assumptions about I.Q.'s and the

impossibility of making any clear "racial grouping". The studies have now been repudiated by the scientific community and generally by society.

9. For a comprehensive and readable review of artifical intelligence see the special feature in The Economist, March 14, 1992.

10. An interesting overview and massive bibliography can be found in Tofler, Alvin, "The Third Wave". New York: Bantam Books, 1980.

11. A post-Jomtien program to increase assistance to the education sector is being pursued by donor agencies, particularly in the Development Assistance Committee of the OECD.

12. The shifts in development assistance programs were first reported by H.M.Phillips in "The Redeployment of Educational Aid", Education and Development Reconsidered, (F.C. Ward, Ed.). New York: Praeger, 1974, pp.266-269. The Jomtien Conference in March, 1990 updated the shifts and recommended that a major momentum be given to the changes.

13. The Logical Framework Approach is used extensively as a mangement tool throughout industrialized countries and has been found to be particularly effective in development assistance programs. See, for example, "Guide for the Use of the Logical Framework Approach", the Canadian International Development Agency, Evaluation Division, Hull, Canada, 1987.

14. Again, see Alvin Tofler's "Third Wave" particularly on world communications. His bibliography (pp. 489-490) lists a number of reports on the impact of World English.

15. BASIC is an acronym for British, American, Scientific, International, Commercial.The invention grew out of C.K. Ogden and I.A. Richards' classic study of "The Meaning of Meaning" first published in 1923 (reprinted by Ark Paperbacks, 1989). It was Ogden's genius that recognized that 800 words, plus some technical terms, could handle all the essential meanings carried by the English language. The BASIC Word List can be printed (with the technical terms) on a single sheet of paper. I.A. Richards was responsible for putting BASIC into a global , operational framework. See, for example, his "English Through Pictures" and his "So Much Nearer: Essays Toward a World English". New York: Harcourt Brace and World, 1968.

16 Northrop Frye first elaborated "myth" in his "Anatomy of Criticism". Princeton: University Press, 1952. His "Words with Power:Being a Second Study of the Bible and Literature" (New York: Viking, 1990) gives a towering documentation of the importance of myth by which Western civilization has purported to live for centuries..

17. James Lovelock's "The Ages of Gaia: A Biography of Our Living Earth". London: Oxford University Press,1991 describes in detail the mythic intelligences by which the earth can be regarded as a total, living entity.

18. The UNCED meetings have been described as essentially religious where the commitments required must go beyond data at hand towards building another perfect world.